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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Moves aimed at securing larger share of nucleonic instrument market have been initiated by two manufacturers. New section, called nuclear electronic products section, has been set up as an integrated business operation by General Electric Co. within the company's atomic power equipment department at San Jose, Calif. It will handle the development, design, manufacture and marketing of electronic systems and components for control of nuclear reactors and other specialized nuclear instrumentation. Some 10,000-sq. ft. in existing buildings at San Jose will be occupied by the new GE section; in addition, a new 2,800-sq. ft. instrument production facility is now under construction. Prompting GE move were industry surveys showing the current nuclear electronics market at about $60 million annually, with an increase to $200 million annually by 1970.....Radio Corp. of America, with a full line of gamma ray measurement devices has moved into the nuclear gauging field. The devices are offered for measuring thickness and density, detecting and controlling seams and voids, measuring and controlling liquid levels, etc. (Other PRODUCT NEWS, p.3 this LETTER.)

Under recent agreement between Baird-Atomic, Inc., and Controls for Radiation, Inc., both of Cambridge, Mass., BA will handle on an exclusive basis in the U.S. and Canada sales representation for the radiation monitoring film badge service of Controls for Radiation. The film badge service is used by nuclear reactor operators, uranium fuel fabricators, public health agencies and other users of radioactive materials. Controls for Radiation has specialized in film badge services, radioanalyses, the leasing of monitoring instrumentation systems, etc. Baird-Atomic is a manufacturer and marketer of nucleonic and spectrochemical instruments, also doing research and development under government contracts. (Other MANUFACTURERS' NEWS, p. 3 this LETTER.)

First Polaris submarine to be built at the Portsmouth Naval Shipyard, N.H., --the U.S.S. Abraham Lincoln--was commissioned last Saturday (March 11). She is the fifth and last of her class of Polaris submarines to be built. Others are the George Washington for which the class is named, Patrick Henry, Robert E. Lee, and the Theodore Roosevelt. Each has a nuclear reactor plant for propulsion and services designed and developed by Westinghouse Electric Corp. people working with staff of the USAEC's naval reactors branch. The work was done at Bettis atomic power laboratory, Pittsburgh, which Westinghouse operates for the USAEC. (Westinghouse also designed and built the launcing and handling equipment for the Polaris missile aboard the Abraham Lincoln. It permits the submarine to fire the solid-fueled Polaris missiles from either a submerged or surfaced position.) (Other BUSINESS NEWS, p. 2 this LETTER.)

Substantial financial interest in Radiation Counter Laboratories, Skokie, Ill. and its subsidiaries, Wakefield Industries, and Radiation Counter Laboratories of Calif., has been purchased by Draper, Gaither and Anderson, an investment capital firm of Palo Alto, Calif. Two board members will be appointed by Draper, Gaither. Radiation Counter Laboratories designs and manufactures nuclear instruments, neutron activators, and special low level counting systems used in measuring radioactivity.

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ATOMIC ENERGY BUSINESS NEWS...

NEW ORGANIZATIONS FORMED: Olin Mathieson Chemical Corp., the Nuclear Development Corp. of America, and Mallinckrodt Chemical Works have jointly formed United Nuclear Corp., a $25 million company. The three founders, already in the nuclear field, will pool resources and staff. Initially, Olin will be the majority stockholder. The new concern will take over all of Nuclear Development Corporation, Olin's nuclear fuel division, and Mallinckrodt's nuclear operations at St. Louis and Hematite, Mo. William C. Foster, now a vice president and director of Olin will be president of United Nuclear. Executives in charge of the nuclear operations of the three organizations concerned will be vice presidents in charge of those activities in the new company. John R. Menke, president of Nuclear Development Corp., will be in charge of the organization at White Plains; Edward Hartshorne will be vice president of the former Olin nuclear fuels operation at New Haven and Montville Conn.; and Charles Harrington will be vice president of the former Mallinckrodt nuclear division, chemical operations, at St. Louis and Hematite. The new company will serve both government and commercial customers. It will work on research and development, reactor system design, manufacture of nuclear fuel materials, reactor and core fabrications, fuel management, cold scrap processing, isotopes and hot radiation energy sources. It will also have people skilled in hot core transportation, hot scrap processing, and hot waste disposal.

NUCLEAR RADIATION SHIELDING DEVELOPMENT: Development and manufacture of light-weight nuclear radiation shielding will be handled by Michigan Chemical Corp., St. Louis, Mich, and Haveg Industries, Inc., Wilmington, Dela., under recent arrangements made by the firms. Patents on a number of thin, rare-earth thermal-neutron shielding materials have been applied for by Michigan Chemical. The experience of Haveg, which is in combining and fabricating plastics and organic and inorganic fibers and fillers, will be utilized under the arrangements. The work will be done by the research departments of the two companies, and outside laboratories will also be used.

HEARINGS ON ATOMIC ENERGY PROGRESS: Testimony by USAEC and industry at Joint Congressional Committee on Atomic Energy's annual "202" hearings, ended last fortnight, showed state of nuclear energy development in the U.S. Progress during the past year in civilian power reactor program was "satisfying though not dramatic" USAEC Commissioner Robert E. Wilson testified. He attributed delays to the "hard realities of cost, safety and public acceptance", which has "tempered early enthusiasm." Wilson also noted that Philadelphia Electric Co.'s high temperature gas-cooled reactor at Peach Bottom, Pa., has been indefinitely delayed pending evaluation of safety of the advanced technical features of the plants.

Increased USAEC support in developing high temperature reactor materials was recommended by several witnesses. Charles H. Weaver, vice president, Westinghouse Electric Corp., observed that materials problems are more numerous than other technical problems. They are retarding the development of both atomic power and nuclear space systems, he noted. More government assistance was specifically recommended for zirconium alloys and beryllium, the most promising of the reactor materials. W. B. Thomas, executive director, Zirconium Association, and Babcock & Wilcox vice president Lauchlin M. Currie recommended an expanded zirconium program. The advantages of beryllium were explained by George Mikhalapov, president, Brush Beryllium Co.

In discussions of the nuclear space program (ROVER, nuclear power rocket and SNAP, systems for auxiliary power for space vehicles) JCAE Chairman Holifield observed that the programs are encountering a certain amount of official delay. It was disclosed that NASA had unsuccessfully attempted to move the ROVER project from the USAEC's Los Alamos Scientific Laboratory to the NASA's Lewis Propulsion Laboratory at Cleveland. The hazards of nuclear reactors in space were discounted in testimony by Chauncey Starr, president, Atomics International. He said that in safe orbit (700 miles or more up) a SNAP reactor will remain in space long enough after it has ceased operating for its radioactivity to diminish to a negligible level. In lower orbital use, he stated, SNAP systems are being designed for complete disintegration and dispersal by re-entry burn-up.

LICENSES TO BE ISSUED & HEARINGS SCHEDULED: Hearing has been scheduled for March 28 at the USAEC's Germantown, Md., headquarters on resumption of operations at Dresden Nuclear Power Station in Grundy County, Ill., which was shut down last November by control rod difficulties.....The USAEC utilization facility license of University of California has been amended to provide additional safeguards for operation of campus reactor, Model AGN-201, at Berkeley.....Export License applications has been made by Allis-Chalmers Manufacturing Co. to ship 20,000 kw reactor to South African Atomic Energy Board.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...

PRODUCT NEWS: New model of the Sparrow radiation alarm, with an alarm 20 times louder than the original model, is now offered by Gelman Instrument Co., Chelsea, Mich. It is available in two versions: standard range as type 28100-AL and high range as type 28100-AH. Giving an immediate audible warning when radiation exceeds a safe level, the device is a miniature Geiger counter with an audio amplifier operating a speaker system and using a set of small flashlight batteries for 2 to 3 weeks of normal usage.

Completion of preliminary tests of its new series one-thirty analyzer-computer has been accomplished by Nuclear Data, Inc., Madison, Wisc. The analyzer, only one of its kind, utilizes the analyzer memory, adder, and control circuits to perform arithmetic operations upon accumulated data.

Low inductance energy storage capacitors, designed especially for high-intensity, fast-discharge applications, are offered by Cornell-Dubilier Electronics division, Federal Pacific Electric Co., South Plainfield, N.J. The capacitors, for nuclear and related research projects, are offered by the manufacturer as individual units or in complete energy storage systems.

MANUFACTURERS' NEWS: Using cesium-137 to supply heat by its radioactive decay, a thermoelectric power source is being developed by Royal Research Corp., Hayward, Calif., subsidiary of Royal Industries, Inc., Los Angeles, Calif. The company holds $130,000 contract from the USAEC and hopes to have by December 1961 a prototype unit delivering 5-watts continuously for 10 years. A subcontract has been let to Westinghouse Electric to build the thermoelectric device. The unit is expected to weigh 250 to 300-lbs., and have a volume of 1 cu. ft. Potential uses are for remote weather stations or other telemetering facility; powering undersea cable repeaters; etc.

Complete nuclear instrumentation will be supplied by Tracerlab, Inc., Waltham Mass., for the Nutrition Research Laboratories of the Indian Council for Medical Research, Hyderabad, India. The equipment order received by Tracerlab includes several fully automatic radioisotope counting systems. The company feels that its success in obtaining this order, despite lower prices offered by overseas competitors, was due to the technical superiority of its products.

Completion and shipment of the nuclear instrumentation for two U.S. developmental nuclear power plants has been accomplished by General Electric Co.'s atomic power equipment department, San Jose, Calif. The plants are the Hallam nuclear power station, at Hallam, Neb., and the City of Piqua nuclear power station, Piqua, Ohio. The GE-designed instrumentation, which includes transistorized safety equipment, provides for rapid automatic shutdown of the reactor if neutron monitoring instruments indicate the reactor power level exceeds permissible limits. The Hallam plant, which uses a sodium-graphite reactor, is designed to produce 75,000 kw of electricity. It was built by Atomics International, and is owned by the USAEC. Consumers Public Power District will operate it and feed its output to its network. The 12,500 kw Piqua plant, also built by Atomics International, is to be operated by the City of Piqua; ownership of the plant will also lie with the USAEC.

Metallurgical operations of Vitro Corp.'s Chemical division, Chattanooga, Tenn., will be expanded to include production of high purity thorium and rare-earth master alloys. A four acre tract for the expended operations will be bought from the government. Adjacent the company's existing plant, it is the first part of the former Cramet titanium plant to be sold for industrial use.

New method of fabricating nuclear fuel elements at reduced cost has been developed by Babcock & Wilcox Co., Lynchburg, Pa. The new technique calls for the vibration of uranium dioxide powder into thin hollow rods which are forged or swaged to the final diameter. In the process, the uranium oxide powder is compressed to the required density. This method of producing fuel elements eliminates such manufacturing processes as pressing, sintering, grinding, and inspection of individual pellets. (Most oxide-type fuel elements now in use consist of a metal container of thin-walled tubes or rods filled with pre-pressed pellets of uranium powder.) Because they show promise of being less expensive to manufacture and have a greater output and longer core lifetime potential the new elements are believed a step toward economic nuclear power.

MANUFACTURERS LITERATURE: Research Specialties Co., Richmond, Calif., include in their RSCo. Review, February issue, description of inventory clearance sale of some 36 tracer compounds labeled with carbon-14.

ATOMIC ENERGY RESEARCH ORGANIZATIONS...news & notes...

CHANGES IN ORGANIZATION OF U.K. ATOMIC ENERGY AUTHORITY: Changes in the organization of the U.K. Atomic Energy Authority, scheduled to take effect April 1, 1961, are with the thought of improving coordination and efficiency. A deputy chairman will be appointed with primary responsibility for scientific and technical coordination throughout the Authority; Sir William Penney will fill this post. The work of designing and developing nuclear reactors will be concentrated in one group of the Authority. The structure of the development and engineering group will be modified for this purpose. It will be renamed the reactor group and will be responsible for design and development of reactors and for relations in this field with industrial firms in the U.K. and with overseas countries. Since the Winfrith research establishment has responsibilities in the same field, it will be transferred from research group to reactor group. The development and engineering groups existing responsibilities for the design and construction of plants, works and buildings will be transferred to a new engineering group which will also take over from the production group its responsibilities for the design and inspection of fuel elements for production purposes. The weapons group is unaffected by the new arrangements.

NEW REACTOR CONCEPT: Babcock & Wilcox's critical experiment laboratory, Lynchburg, Va., with work underway on feasibility of new reactor concept called spectral shift control, has been authorized by the USAEC to conduct the necessary critical and exponential experimental work. The commission last June awarded B&W contract for the study of basic physics of the SSCR concept which would use varying mixtures of ordinary and heavy water as coolant, moderator and partial control agent. The company's facility license was amended by the USAEC last month authorizing modification of the former nuclear merchant ship reactor for critical experiments on SSCR. A new USAEC amendment authorized modification of Lynchburg source reactor for exponential experiments.

FIRST OPERATION OF NEW RESEARCH REACTOR: New open pool nuclear reactor at Washington State University, Pullman, Wash., has sustained its initial chain reaction. The 100 thermal kw research and test reactor was put into operation last week by General Electric Co. people working at the site. The company's atomic power equipment department designed and manufactured the reactor and fabricated the nuclear fuel elements at its San Jose, Calif., plant. The reactor has 3,580 grams of uranium-235 encased in 30 aluminum-jacketed fuel elements, under 20-feet of water in the center of a 70,000-gallon reactor pool.

EARTH SHOCK EFFECTS TO BE STUDIED: Seven research and industrial organizations have been asked by the USAEC's Albuquerque, N.M., operations office to consider conducting a program of studies on earth shock effects of underground nuclear detonations. One organization, on the basis of the proposals, would be chosen for the work. So far, some five underground nuclear detonations with an explosive yield of one kiloton or more have been fired at the USAEC's Nevada test site. In the study program being considered, existing knowledge of earth shock phenomena associated with such events would be collected and interpreted, so that it could be used in considering the likely effects of possible future detonations in other geographical regions. The selected organization would also obtain earth shock information from any future detonations, correlate it with the geology involved, and perhaps eventually have a basis for predicting with reasonable certainty the public safety effects of ground shock from any underground nuclear detonation, if given advance knowledge of the explosive yield and the surrounding geology.

NEW BOOKS & OTHER PUBLICATIONS...

Costs of Nuclear Power. Revised version of July, 1959 publication of this name. Revised report includes information on several new reactor projects; breaks down into major components the capital costs of several U.S. and foreign nuclear power plants; and text and tables have been revised and expanded. Covers some 30 nuclear power plants overseas and 22 U.S. plants. No. TID-8531. 40 pages. ($0.50) .....Applications of Radioisotopes to the Mining, Handling, Use, and Storage of Coal. Work done by H. J. Rose, Bituminous Coal Research, Inc., for the USAEC. No. NYO-2859. ($3.00).....Industrial Potential of Radioisotopes in the Textile Industry. Investigations by L. Rebenfeld, H. J. White, Jr., of Textile Research Institute, Princeton, N.J. No. NYO-2640. ($0.50).....Industrial Potential of Radioisotopic Methods in the Synthetic Detergent and Soap Industry. Study by C. W. Stanley, Midwest Research Institute, Kansas City, Mo. No. TID-6088. ($1.25). --Office of Technical Services, Washington 25, D.C.

ATOMIC ENERGY PATENT NEWS...

PATENTS ISSUED February 28, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Process for irradiating frozen coconut meat. Robert R. Baldwin, William J. Ohan, Jr., inventors. No. 2,973,271 assigned to General Foods Corp., White Plains, N.Y. (2) Organic plastic destaticized with strontium-90; method of making and laminate containing same. William H. Yanko, Samuel Steingiser, Ival O. Salyer, inventors. No. 2,973,292 assigned to Monsanto Chemical Co., St. Louis, Mo. (3) Portable radiographic unit. Seth D. Reeder, inventor. No. 2,973,435 assigned to Phillips Petroleum Co. (4) Neutron source for well logging apparatus. John T. Dewan, inventor. No. 2,973,444 assigned to Schlumberger Well Surveying Corp., Houston, Texas. (5) Method for detection, conversion and amplification of x-ray images. Thomas H. Rogers, inventor. No. 2,973,445 assigned to The Machlett Laboratories, Inc., Springdale, Conn. (6) Safety systems for nuclear reactors. Anthony E. T. Nye, inventor. No. 2,973,458 assigned to The British Thomson-Houston Co., Ltd., London, England.

PATENTS ISSUED February 28, 1961 to GOVERNMENTAL ORGANIZATIONS: (1) Pulse inverting transformer. Dick A. Mack, inventor. No. 2,973,492 assigned to USAEC.

PATENTS ISSUED March 7, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Radio-sulfochlorination of paraffins. James F. Black, inventor. No. 2,974,094 assigned to Esso Research and Engineering Co. (2) Geiger-Muller counter tube. Nicholas Anton, inventor. No. 2,974,247 issued to inventor of record. (3) Process of purifying beryllium compounds. P. Riaboval, inventor. No. 2,974,011 assigned to Pechiney, Paris, France.

PATENTS ISSUED March 7, 1961 to GOVERNMENTAL ORGANIZATIONS: (1) Direct conversion of uranium turnings to uranium tetrafluoride. Otto E. Fry, inventor. No. 2,974,006 assigned to USAEC. (2) Preparation of beryllium oxide of high purity. Raymond Cooperstein, Gary R. Anderson, inventors. No. 2,974,012 assigned to USAEC. (3) Fuel slug rupture detector. Ronald S. Paul, inventor. No. 2,974,096 assigned to USAEC. (4) Neutron-insensitive beta-gamma dosimeter. John A. Auxier, George S. Hurst, Richard E. Zedler, inventors. No. 2,974,248 assigned to USAEC. (5) Method and means for increasing electron emission. Alfred J. Bureau, inventor. No. 2,974,251 assigned to USAEC.

ATOMIC ENERGY CONTRACT NEWS...

CONTRACTS AWARDED: Two contracts have been awarded by the USAEC for a study of the mixing, diffusion and circulation rates of ocean waters; the information is of interest in predicting ocean current distribution of radioactive isotopes. One of the contracts went to Columbia University's Lamont Geological Observatory, Palisades, N.J., for a study of the mixing, diffusion and circulation rates in the oceans. The other was to Systems Engineering division of Pneumo Dynamics Corp., Washington, D.C., for development testing and delivery of equipment to be used in the ocean current study. The study will involve placing a fluorescent dye, Rhodamine B, in certain ocean areas. Water will be sampled by a ship-towed detecting device. Various depths will be studied. The Commission has allocated $290,000 to Lamont and $200,000 to Pneumo Dynamics for the project.

BID NEWS: Three companies made acceptable bids on recent lots of vanadium pentoxide offered by the USAEC's Grand Junction, Colo., operations office. Union Carbide Metals Co., New York, was high bidder on ten lots totaling 848,034-lbs. at $0.985 per lb. Vanadium Corp. of America, New York, was high bidder on two lots totaling 196,816-lbs. at $1.072 per lb. Derby and Co., Ltd., Pittsburgh, Pa. bid high on one lot of 95,049-lbs. at $1.12 per lb.

The small pressurized water reactor project which the USAEC proposed for cooperatives and public power organizations has been terminated by the Commission. Proposals for the project were initially made by City of Jamestown, N.Y., and Dairyland Power Cooperative, La Crosse, Wisc. The proposers were to provide the site and turbo generating facilities, operate the plant, and purchase stem from the reactor plant which the Commission would own. However, the sites offered initially by the proposers were unsatisfactory from a safety standpoint. Alternate sites later proposed, while satisfactory from a safety viewpoint, increased capital costs so severely that power produced would be uneconomic now and in the foreseeable future.

Sincerely,

The Staff
ATOMIC ENERGY NEWSLETTER

March 14, 1961